Active Project (2014 - 2018)

SpaceCraft Oxygen Recovery (SCOR) Project

Game Changing Development Program | Space Technology Mission Directorate (STMD)

ANTICIPATED BENEFITS

To NASA funded missions:

The SpaceCraft Oxygen Recovery (SCOR) project element has direct benefit to the International Space Station (ISS) Program. The advanced technologies developed under SCOR seek to close the atmosphere revitalization loop by improving on the rate of oxygen recovery from carbon dioxide over the state of the art used on the ISS. If successful, these technologies will be on track for consideration for flight demonstration on the ISS by our Human Exploration Operations Mission Directorate customer, the Advanced Exploration Systems Program. Furthermore, upon successful demonstration, the technology would be a viable option as an operational subsystem given interest by the ISS Program to further invest in the technology.

DETAILED DESCRIPTION

The state-of-the-art Atmosphere Revitalization Systems (ARS) on spacecraft such as the ISS are only partially closed. A significant amount of oxygen is not recycled and lost to space as unprocessed carbon dioxide. Further closure is necessary to reduce launch mass and increase space vehicle self sufficiency, enabling long duration human exploration beyond LEO. This task seeks to increase oxygen recovery beyond the state of the art (42%) to at least 75% and approaching 100%.

SCOR Technical Collaboration Meeting

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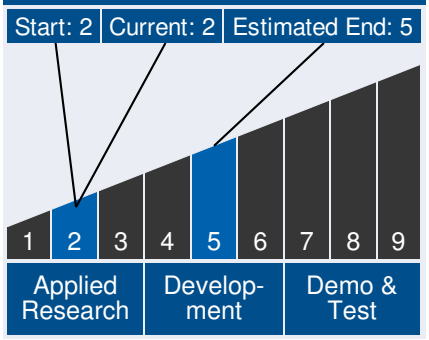
Technology Maturity



Management Team

Program Executive:

- Lanetra Tate

Program Manager:

- Mary Wusk

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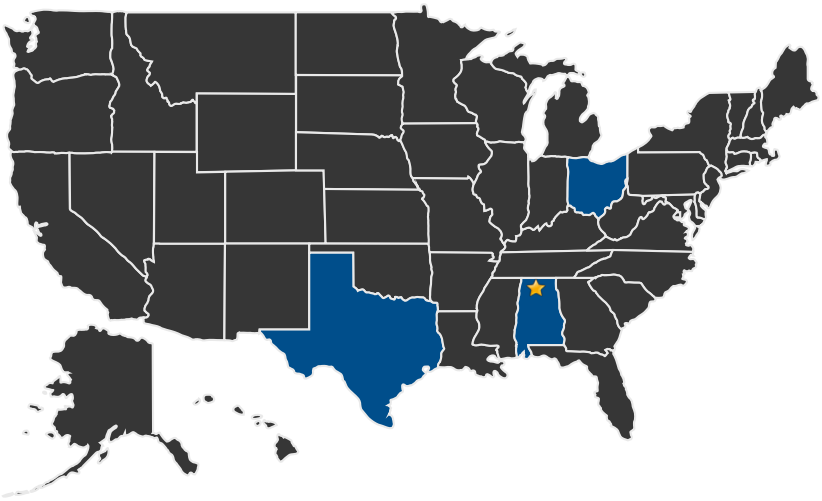
U.S. WORK LOCATIONS AND KEY PARTNERS



U.S. States With Work

Lead Center:
Marshall Space Flight Center

Other Organizations Performing Work:

- PH Matter, LLC (Columbus, OH)
- Umpqua Reasearch
- UNIVERSITY OF DELAWARE
- University of Texas at Arlington

DETAILS FOR TECHNOLOGY 1

Technology Description

This technology is categorized as a hardware subsystem for manned spaceflight

Management Team *(cont.)*

Project Manager:

- Daniel Barta

Technology Areas

Primary Technology Area:
Human Health, Life Support, and Habitation Systems (TA 6)
- Environmental Control and Life Support Systems and Habitation Systems (TA 6.1)
  - Air Revitalization (TA 6.1.1)
    - CO2 Reduction (TA 6.1.1.2)

Secondary Technology Area:
Human Exploration Destination Systems (TA 7)
- In-Situ Resource Utilization (TA 7.1)
  - Processing and Production (TA 7.1.3)